What is claimed is:

1. A plasma processing apparatus comprising:

a plasma processing chamber;

a susceptor installed within the plasma processing chamber for mounting thereon a substrate to be processed;

a ring member disposed to surround a periphery of the substrate to be processed with a gap therebetween; and

a lower ring body placed below the substrate to be processed and the ring member.

2. The apparatus of claim 1, wherein a ratio of an impedance per unit area of the ring member to that of the substrate to be processed is equal to or less than about 5.

3. The apparatus of claim 2, wherein the ratio of the impedance per unit area of the ring member to that of the substrate to be processed is equal to or less than about 3.

4. The apparatus of claim 3, wherein the ratio of the impedance per unit area of the ring member to that of the substrate to be processed is equal to or less than about 1.5.

5. The apparatus of claim 1, wherein the ring member is made of a material having an impedance substantially identical to that of the substrate to be processed and a

thickness of the ring member is equal to or less than about five times a thickness of the substrate to be processed.

6. The apparatus of claim 1, wherein the ring member is made of the same material as that forming the substrate to be processed and a thickness of the ring member is equal to or less than about five times a thickness of the substrate to be processed.

7. The apparatus of claim 6, wherein the substrate to be processed is a semiconductor wafer made of silicon and having a thickness of about 0.8 mm and the ring member is made of silicon and has a thickness not greater than about 4 mm.

8. The apparatus of claim 6, wherein the substrate to be processed is a semiconductor wafer made of silicon and the ring member is made of silicon and has a thickness substantially identical to that of the semiconductor wafer.

9. The apparatus of claim 1, wherein the ring member is formed of SiC, aluminum having a thermally sprayed coating formed on a surface thereof, quartz or ceramics.

10. The apparatus of claim 1, wherein the susceptor includes a conductive lower electrode and the ring member is

formed on a surface of the lower electrode by thermal spraying.

11. The apparatus of claim 1, wherein the lower ring body serves to protect the susceptor from a plasma generated within the plasma processing chamber.

12. A plasma processing apparatus comprising:

a plasma processing chamber;

a susceptor installed within the plasma processing chamber for mounting thereon a substrate to be processed;

a ring member disposed to surround a periphery of the substrate to be processed with a gap therebetween; and

an electrostatic chuck formed on the susceptor to be located below the substrate to be processed and the ring member.

13. A plasma processing apparatus comprising:

a plasma processing chamber;

a susceptor installed within the plasma processing chamber for mounting thereon a substrate to be processed; and

a ring member disposed to surround a periphery of the substrate to be processed with a gap therebetween,

wherein a ratio of an impedance per unit area of the ring member to that of the substrate to be processed is

equal to or less than about 5.

14. A focus ring disposed on a susceptor to surround a periphery of a substrate to be processed, the susceptor being installed within a plasma processing chamber of a plasma processing apparatus, the focus ring comprising:

a ring member disposed to surround the periphery of the substrate to be processed with a gap therebetween; and

a lower ring body placed below the substrate to be processed and the ring member.

15. The focus ring of claim 14, wherein a ratio of an impedance per unit area of the ring member to that of the substrate to be processed is equal to or less than about 5.

16. The focus ring of claim 14, wherein the ring member is made of a material having an impedance substantially identical to that of the substrate to be processed and a thickness of the ring member is equal to or less than about five times a thickness of the substrate to be processed.

17. The focus ring of claim 14, wherein the ring member is made of the same material as that forming the substrate to be processed and a thickness of the ring member is equal to or less than about five times a thickness of the substrate to be processed.

18. The focus ring of claim 14, wherein the ring member is formed of SiC, aluminum having a thermally sprayed coating formed on a surface thereof, quartz, or ceramics.

19. The focus ring of claim 14, wherein the ring member is formed at a surface of a conductive lower electrode by thermal spraying.

20. A focus ring disposed on a susceptor to surround a periphery of a substrate to be processed, the susceptor being installed within a plasma processing chamber of a plasma processing apparatus, the focus ring comprising:

a ring member disposed to surround the periphery of the substrate to be processed, wherein a ratio of an impedance per unit area of the ring member to that of the substrate to be processed is equal to or less than about 5.